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10/670,093	09/24/2003	Alexander Tormasov	2230.0360000/MBR/GSB	6278

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EXAMINER

PADMANABHAN, KAVITA

ART UNIT	PAPER NUMBER
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2161

DATE MAILED: 06/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/670,093

Applicant(s)

TORMASOV ET AL.

Examiner

Kavita Padmanabhan

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 and 24-28 is/are rejected.
- 7) ☒ Claim(s) 20-23 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>9/24/03, 1/4/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Status of Claims

1. Claims 1-28 are pending.
2. Claims 1-19 and 24-28 are rejected.
3. Claims 20-23 are objected to.

Information Disclosure Statement

4. The listing of references at page 1, lines 22-26 in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Claim Objections

5. **Claims 1 and 19** are objected to because of the following informalities:

In regards to **claim 1**, the word "arranging" should be changed to --arranged-- at line 11 of the claim.

In regards to **claim 19**, the word --of-- should be added after the word "set" at line 1 of the claim.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. **Claims 8 and 25-26** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 8 recites the limitation "said plurality of mounting objects" in line 1 of the claim. There is insufficient antecedent basis for this limitation in the claim.

Claim 25 recites the limitation "determining a belonging of an area" at line 6 of the claim. However, it is unclear what the area is determined to belong to.

The examiner will apply prior art to this claim as best understood in light of the above rejection.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out

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the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. **Claims 1, 3, and 9-16** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chujo et al.** (US 2002/0023156, hereinafter “Chujo”) **in view of Mane et al.** (US 2005/0050107, hereinafter “Mane”).

In regards to **claim 1**, **Chujo** teaches a system for implementing a data storage quota comprising:

- a computer system including a plurality of data storage devices (**Chujo, Fig. 2**) and an authentication mechanism, said authentication mechanism having a plurality of unique identifiers and authorizing a plurality of users based upon at least one of said plurality of unique identifiers (**Chujo, par [0029], lines 5-7**);
- a user group comprising a first set of users from said plurality of users, each of said first set of users having a first identifier of said plurality of unique identifiers (**Chujo, par [0030], lines 17-19**),
- a hierarchic computer file system organized on top of at least one of said plurality of data storage devices (**Chujo, par [0035]**), said hierarchic computer file system comprising a plurality of files, a plurality of parameters (**Chujo, par [0035]**), said plurality of parameters describing a plurality of qualitative characteristics of a level of consumption of a plurality of file system resources by said plurality of users and user group (**Chujo, par [0036] - par [0038]**);

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- a quota system coupled to said hierarchic computer file system, said quota system determining a used quantitative parameter of file resource consumption that is associated with said plurality of files and can identify for at least one of said plurality of users a total value of a set of quantitative parameters of file resource consumption (**Chujo, par [0039] - par [0042]**);
- wherein said set of said quantitative parameters of file resource consumption are marked by a set of third identifiers of said plurality of unique identifiers coupled to said used quantitative parameter of file resource consumption and other quota parameters of said used quantitative parameter of file resource consumption (**Chujo, par [0038] - par [0042]**).

Chujo does not expressly teach a plurality of directories and the plurality of files arranged into a plurality of trees and having a second identifier from said plurality of unique identifiers. **Mane** teaches files arranged in directory trees (**Mane; par [0005], lines 1-4**). **Mane** also teaches files being identified with directory trees and directory tree quotas (**Mane, par [0005], Fig. 4**). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to implement the system of **Chujo** with the file and directory structure taught by **Mane** whereby the directory quota id could be used in the management table of **Chujo** as another unique identifier in order to maintain quotas for storage resources used for storing files in selected directory trees (**Mane; par [0005], lines 1-4**).

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In regards to **claim 3**, **Chujo and Mane** teach the system of claim 1, wherein said second identifier acts as an attribute to denote belonging to at least one of said plurality of users and said user group (**Mane, par [0005], Fig. 4**).

In regards to **claim 9**, **Chujo and Mane** teach the system of claim 1, wherein said plurality of unique identifiers can be within a context of an operating system (**Chujo, par [0004], par [0034]**).

In regards to **claim 10**, **Chujo and Mane** teach the system of claim 9, further comprising a computer network connected with said computer system and wherein said context of said operating system comprises a set of identifiers unique in said computer network (**Chujo, par [0004], par [0034]**).

In regards to **claim 11**, **Chujo and Mane** teach the system of claim 9, wherein said context of said operating system comprises a set of identifiers unique on said computer system (**Chujo, par [0004], par [0034]**).

In regards to **claim 12**, **Chujo and Mane** teach the system of claim 9, wherein said context of said operating system comprises a set of identifiers unique to an allocated area of said computer system (**Chujo, par [0004], par [0034]; Mane, Fig. 4**).

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In regards to **claim 13**, **Chujo and Mane** teach the system of claim 12, wherein said allocated area comprises a chroot environment (**Chujo, par [0004], par [0034]; Mane, Fig. 4 – obvious in UNIX OS that the allocated area could comprise a chroot environment; moreover UNIX is a chroot environment**).

In regards to **claim 14**, **Chujo and Mane** teach the system of claim 12, wherein said allocated area comprises a virtual environment (**Mane, par [0041]**).

In regards to **claim 15**, **Chujo and Mane** teach the system of claim 1, wherein said plurality of parameters of said hierarchic computer file system comprises at least one of a consumption parameter on a size of at least one of said plurality of data storage devices associated with at least one of said plurality of users and said user group, a consumption parameter on a number of various auxiliary file system structures used to arrange files of at least one of said plurality of users and said user group, a consumption parameter on other parameters of auxiliary operations performed by an operating system to serve at least one of said plurality of users and said user group during a period of time, and a consumption parameter on a time and range of modifications of any of said above consumption parameters that allow a user to modify already defined limitations (**Chujo, par [0039] - par [0042]**).

In regards to **claim 16**, **Chujo and Mane** teach the system of claim 1, wherein said quota system can operate with said hierarchic computer file system and does not require modification of a manner in which data and file metadata are represented in said hierarchic computer file

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system, as well as a way of representing file system service data in said at least one of said plurality of data storage devices organized below said hierarchic computer file system (**Chujo, par [0039] - par [0042]; Mane, Fig. 4**).

11. **Claims 2 and 4-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chujo in view of Mane**, further in view of **Inglett** (US 5,905,990).

In regards to **claim 2, 4, and 7, Chujo and Mane** teach the system of claim 1. Chujo and Mane do not expressly teach the file system having a hidden root directory that is not visible to said plurality of users and a specific data storage space mounted to an available directory area, said specific data storage area comprising a second computer file system. **Inglett** teaches creating mountpoint directories wherein files can be manifested (**Inglett, abstract**) and also teaches directories being made visible, therefore suggesting that they were previously not visible (**Inglett, col. 4, lines 39-41**). It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to implement the system of Chujo and Mane using these feature of Inglett in order to provide added flexibility to the file system (**Inglett, col. 4, lines 29-32**).

In regards to **claim 5, Chujo, Mane, and Inglett** teach the system of claim 4, wherein said second computer file system is mounted inside said available directory of said hierarchic computer file system, wherein after said second computer file system is mounted, said computer system has an opportunity to use said second computer file system as an extension of said hierarchic computer file system (**Inglett, abstract**).

In regards to **claim 6, Chujo, Mane, and Inglett** teach the system of claim 4, wherein after said second computer file system is mounted, said second computer file system becomes a part of a new tree of said hierarchic computer file system (**Inglett, abstract; Mane, par [0005], lines 1-4**).

In regards to **claim 8, Chujo, Mane, and Inglett** teach the system of claim 6, wherein said plurality of mounting objects comprise a plurality of file system volumes and a plurality of file system sub-trees (**Inglett, abstract; Mane, par [0005], lines 1-4, Fig. 7**).

12. **Claims 17-19 and 24-28** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Chujo in view of Mane, further in view of Inglett, and further in view of Byrnes** (US 6,832,248).

In regards to **claim 17, Chujo** teaches a method for implementing a data storage quota comprising:

- authorizing a plurality of users within a computer system with a plurality of unique identifiers of any context of an operating system (**Chujo, par [0029], lines 5-7**);
- grouping a first set of users of said plurality of users in a user group, each of said first set of users having at least one of said plurality of unique identifiers (**Chujo, par [0030], lines 17-19**);

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- organizing a hierarchic computer file system on top of a data storage device, wherein said hierarchic computer file system comprises a plurality of files, a plurality of parameters **(Chujo, par [0035])**
- describing qualitative characteristics of a level of consumption of a plurality of resources of said hierarchic computer file system by at least one of said plurality of users and said user group via said plurality parameters of said hierarchic computer file system **(Chujo, par [0036] - par [0038]); and**
- calculating a used quantitative parameter of file resource consumption associated with said plurality of files **(Chujo, par [0039] - par [0042]).**

Chujo does not expressly teach arranging said plurality of files into a plurality of trees, wherein each of said plurality of files has at least one of said plurality of unique identifiers to act as an attribute which denotes belonging to at least one of said plurality of users and said user group, mounting a specific data storage area as a second file system inside any available directory of said hierarchic computer file system, wherein after said mounting of said specific data storage area said computer system can use said second file system as an extension of a new tree of said hierarchic computer file system, and telling at least one of said plurality of users a total value of a set of quantitative parameters of file resource consumption using said used quantitative parameter of file resource consumption.

Mane teaches files arranged in directory trees (**Mane; par [0005], lines 1-4**). **Mane** also teaches files being identified with directory trees and directory tree quotas (**Mane, par [0005], Fig. 4**). **Inglett** teaches creating a mountpoint directory wherein files can be manifested (**Inglett,**

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abstract). Byrnes teaches sending a notification to a user based on quota usage (Byrnes, Fig. 5, reference character 530).

It would have been obvious to one of ordinary skill in the art at the time of the applicant's invention to implement the method of Chujo with the file and directory structure taught by Mane, whereby the directory quota id could be used in the management table of Chujo as another unique identifier, in order to maintain quotas for storage resources used for storing files in selected directory trees (**Mane; par [0005], lines 1-4**). It would also have been obvious to one of ordinary skill in the art at the time of the applicant's invention to implement the method of Chujo and Mane by using a mountpoint directory, as taught by Inglett, in an available directory of the system of Chujo and Mane in order to provide added flexibility to the file system (**Inglett, col. 4, lines 29-32**) and to incorporate the notification feature taught by Byrnes so that users could be notified of their file resource consumption information (**Byrnes, Fig. 5, reference character 530**).

In regards to **claim 18, Chujo, Mane, Inglett, and Byrnes** teach the method of claim 17, wherein said calculating step further comprises:

- coupling a set of identifiers from said plurality of unique identifiers to said used quantitative parameter of file resource consumption (**Chujo, par [0036] – par [0038]**);
and
- marking said set of quantitative parameters of file resource consumption with said set of identifiers from said plurality of unique identifiers and other quota parameters of said

used quantitative parameter of file resource consumption (**Chujo, par [0036] – par [0038]**).

In regards to **claim 19, Chujo, Mane, Inglett, and Byrnes** teach the method of claim 17, wherein a set directories within said plurality of directories comprises a plurality of mounting points of said hierarchic computer file system, wherein said plurality of mounting points are located inside said hierarchic computer file system, and wherein a file system volume and a file system sub-tree can each be used as a mounting object for said plurality of mounting points (**Inglett, abstract; Mane, par [0005], lines 1-4, Fig. 7**).

In regards to **claim 24, Chujo, Mane, Inglett, and Byrnes** teach the method of claim 17, wherein said calculating step further comprises:

- releasing an allocated area size and a plurality of other data storage parameters (**Chujo, par [0039] - par [0043]**); and
- modifying said allocated area size and said plurality of other data storage parameters (**Chujo, par [0039] - par [0042], par [0064]**).

In regards to **claim 25, Chujo, Mane, Inglett, and Byrnes** teach the method of claim 24, wherein said releasing and modifying step comprises:

- defining a belonging of said used quantitative parameter of file resource consumption to at least one of said plurality of files of said hierarchic computer file system (**Chujo, par [0039] - par [0042]; Mane, par [0005], Fig. 4**);

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- determining a belonging of an area of said used quantitative parameter of file resource consumption (**Chujo, par [0039] - par [0042]; Mane, par [0005], Fig. 4**);
- determining at least one of said plurality of unique identifiers (**Chujo, par [0030], lines 17-19**);
- detecting a plurality of current values of said plurality of parameters (**Chujo, par [0038], lines 2-3, par [0040] – par [0042], par [0046]**);
- identifying a plurality of limitations associated with said plurality of parameters based on at least one of said plurality of users and said user group (**Chujo, par [0040] – par [0042], par [0046]**);
- updating in at least one of a special file, a data storage area, and a computer operating memory, and a special server of said detected current values and said identified limitations (**Chujo, par [0040] - par [0042], par [0046], par [0064]**);
- comparing said identified limitations with a current value of a storage usage, a current state of said computer system, a current state of said hierarchic computer file system and a requested size for an allocated space and other parameters of data storage (**Chujo, par [0040] - par [0042], par [0046]**); and
- determining a permission to a required operation of said computer system based on said comparing step and an execution of said required operation (**Chujo, par [0039]; Byrnes, Fig. 5, reference character 530**) .

In regards to **claim 26, Chujo, Mane, Inglett, and Byrnes** teach the method of claim 25, wherein said releasing and modifying steps are performed by at least one of a special program of said operating system and a kernel of said operating system (**Chujo, par [0004], par [0034]**).

In regards to **claim 27, Chujo, Mane, Inglett, and Byrnes** teach the method of claim 17, wherein said plurality of parameters of said hierarchic computer file system comprises at least one of a consumption parameter on a size of at least one of said plurality of data storage devices associated with at least one of said plurality of users and said user group, a consumption parameter on a number of various auxiliary file system structures used to arrange files of at least one of said plurality of users and said user group, a consumption parameter on other parameters of auxiliary operations performed by an operating system to serve at least one of said plurality of users and said user group during a period of time, and a consumption parameter on a time and range of modifications of any of said above consumption parameters that allows for use by a user to modify already defined limitations (**Chujo, par [0039] - par [0042]**).

In regards to **claim 28, Chujo, Mane, Inglett, and Byrnes** teach the method of claim 17, said calculating step can operate on top of said hierarchic computer file system and does not require modification of any manner in which data and file metadata are represented, as well as any way file system service data is represented in said storage device of said hierarchic computer file system (**Chujo, par [0039] - par [0042]; Mane, Fig. 4**).

Allowable Subject Matter

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13. **Claims 20-23** are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to **Kavita Padmanabhan** whose telephone number is **571-272-8352**. The examiner can normally be reached on Monday-Friday, 9:00am-5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Gaffin can be reached on 571-272-4146. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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June 25, 2006



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